



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,607	10/26/2005	Chhiu-Tsu Lin	2384.00060	2108
Kenneth I Kohn Kohn 7 Associates 30500 Northwestern Hwy Suite 410 Farmington Hills, MI 48334				
7590 03/08/2011			EXAMINER JARRETT, LORE RAMILLANO	
			ART UNIT 1772	PAPER NUMBER
			MAIL DATE 03/08/2011	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/540,607

**Applicant(s)**

LIN, CHHIU-TSU

**Examiner**

LORE JARRETT

**Art Unit**

1772

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/27/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

1. In applicant's reply filed on 12/29/10, applicant amended claims 1, 6, and 11; and cancelled claims 5, 10, and 12-17. Claims 1-4, 6-9, and 11 are pending and under examination.

### ***Response to Amendment***

#### ***Claim Rejections - 35 USC § 112***

2. In light of applicant's claim amendments, the prior rejection of claims 1-11 under 35 U.S.C. 112, second paragraph, is withdrawn.

#### ***Prior art rejections***

3. In light of applicant's claim amendments, the prior rejections are modified.

#### ***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. **Claims 1-4, 6-9, and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. ("Dunn," US 5200334, previously cited) in view of Anvar et al. ("Anvar," US Pub. No. 2003/0224530, previously cited).

As to claims 1, 6, and 11, Dunn discloses a charge-transfer chemical sensor comprising: a sol-gel material affixable to a predetermined exterior surface, and indicating means within said sol-gel for detecting and signaling a presence of at least one chemical (i.e. col. 1, line 53 to col. 2, line 13; col. 7, line 59 to col. 10, line 5). Furthermore, the claim language, "charge-transfer indicating means . . . for" does not

invoke 35 USC 112, sixth paragraph because the claim language appears to be modified by sufficient structure, material, or acts for achieving the specified function. In addition, as to the claim language, "at least one chemical selected from the group consisting essentially of chemical warfare agents, agricultural pesticides, and insecticides," such language does not appear to structurally distinguish the claimed invention from the prior art. Furthermore, because the prior art discloses the structural features of the claimed sensor, Dunn's sensor appears capable of detecting the one of the components from the claimed group. See also col. 2, lines 6-13.

As to claims 1, 6, and 11, Dunn does not specifically disclose a backing that enables affixation to the predetermined surface.

Anvar discloses, in one embodiment, a sensor having three layers as shown in the FIGURE. The substrate (10) has a first sol-gel layer (12) deposited on it, then a second sol-gel layer (14) deposited on the first sol-gel layer (12), and finally a diffusion control layer (16) deposited on the second sol-gel layer (14). The adhesion of sol-gel layers to the substrate can be promoted by an adhesion layer (18) that contains linker molecules (e.g. glutaraldehyde) which connect functional groups in between the substrate (10) and the first sol-gel layer (12). The adhesion of sol-gel layers can be promoted by an adhesion layer (20) between the first sol-gel layer (12) and the second sol-gel layer (14), and between the second sol-gel layer (14) and the diffusion control layer (16). The diffusion control layer (16) can be made of sol-gel or other material adapted to control the diffusion of desired material into the underlying sol-gel layers.

[0012] In other embodiments, the sensor can have any number of layers, including any combination of sol-gel layers and diffusion control layers adhered together with an adhesion layer. The term "adhesion layer" ("backing") refers to any thin film or monolayer adapted to maintaining the contact or promote adhesion between the one sol-gel layer and another sol-gel layer, or a sol-gel and a substrate. See [0001]-[0039].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Dunn's sensor by including a backing to enable the sensor to be affixable to an exterior surface because it would be desirable to have a layer adapted to maintain the contact or promote adhesion between the sol-gel layer and the substrate (or an exterior surface). See Anvar, [0012]).

As to claims 2 and 7, the modified Dunn discloses that the indicating means includes colorimetric signal means for signaling the presence of at least one chemical (i.e. col. 1, line 53 to col. 2, line 13; col. 7, line 59 to col. 10, line 5). Furthermore, the claim language, "colorimetric signal means for" does not invoke 35 USC 112, sixth paragraph because the claim language appears to be modified by sufficient structure, material, or acts for achieving the specified function.

As to claims 3 and 8, the modified Dunn discloses that the signal means is selected from the group consisting essentially of an indicator with Cu (II), an indicator with CuZnSOD (i.e. col. 1, line 53 to col. 2, line 13; col. 7, line 59 to col. 10, line 5).

As to claims 4 and 9, the modified Dunn discloses that the sol-gel is an optically transparent xerogel (i.e. col. 1, line 53 to col. 2, line 13; col. 7, line 59 to col. 10, line 5).

6. **Claims 1-4, 6-9, and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wicks et al. ("Wicks," US 5637507, previously cited) in view of Anvar.

As to claims 1, 6, and 11, Wicks discloses a charge-transfer chemical sensor comprising: a sol-gel material affixable to a predetermined exterior surface, and indicating means within said sol-gel for detecting and signaling a presence of at least one chemical (i.e. col. 4, line 3 to col. 5, line 10; col. 5, line 49 to col. 10, line 64). Furthermore, the claim language, "indicating means . . . for" does not invoke 35 USC 112, sixth paragraph because the claim language appears to be modified by sufficient structure, material, or acts for achieving the specified function. In addition, as to the claim language, "at least one chemical selected from the group consisting essentially of chemical warfare agents, agricultural pesticides, and insecticides," such language does not appear to structurally distinguish the claimed invention from the prior art. Furthermore, because the prior art discloses the structural features of the claimed sensor, Wicks' sensor appears capable of detecting the one of the components from the claimed group. See also col. 4, lines 44-64

As to claims 1, 6, and 11, Wicks does not specifically disclose a backing that enables affixation to the predetermined surface.

See Anvar supra.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Wick's sensor by including a backing to enable the sensor to be affixable to an exterior surface because it would be desirable to have a layer adapted to

maintain the contact or promote adhesion between the sol-gel layer and the substrate (or an exterior surface). See Anvar, [0012].

As to claims 2 and 7, the modified Wicks discloses that the indicating means includes colorimetric signal means for signaling the presence of at least one chemical (i.e. col. 4, line 3 to col. 5, line 10; col. 5, line 49 to col. 10, line 64). Furthermore, the claim language, "colorimetric signal means for" does not invoke 35 USC 112, sixth paragraph because the claim language appears to be modified by sufficient structure, material, or acts for achieving the specified function.

As to claims 3 and 8, the modified Wicks discloses that the signal means is selected from the group consisting essentially of an indicator with Cu (II), an indicator with thymol blue/Fichlor (i.e. col. 4, line 3 to col. 5, line 10; col. 5, line 49 to col. 10, line 64).

As to claims 4 and 9, the modified Wicks discloses that the sol-gel is an optically transparent xerogel (i.e. col. 4, line 3 to col. 5, line 10; col. 5, line 49 to col. 10, line 64).

### ***Response to Arguments***

7. Applicant's arguments filed 12/29/10 have been fully considered but they are not persuasive.

#### **Rejection over Dunn in view of Anvar**

In response to applicant's argument that Dunn does not disclose using the structure to detect a chemical such as chemical warfare agents, agricultural pesticides, and insecticides, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to

patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Here, as stated above, because the prior art discloses the structural features of the claimed sensor, Dunn's sensor appears capable of detecting one of the components from the claimed group. See also col. 2, lines 6-13, which discloses the following: the "*sensors [are] for qualitatively and quantitatively detecting the presence of numerous compounds, both organic and inorganic, which react with the entrapped material.*" The disclosure by Dunn appears to encompass the claimed intended use language.

In response to applicant's argument that Anvar does not disclose a sensor wherein the substrate includes an adhesion layer in order to be affixed on an exterior surface, the Office does not find this argument to be persuasive to overcome the obviousness rejection. First, the Office interpreted Anvar's substrate as the "predetermined exterior surface," which is not positively claimed. Second, Anvar explicitly discloses that the sensor may be adhered to any type of support ("exterior surface") by utilizing the adhesion layer ("backing"). See [0014]. Thus, persons skilled in the art would recognize the benefit of utilizing Anvar's adhesion layer for adhering Dunn's sensor to an exterior surface.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *of a piece of clothing, a vehicle, or a person's skin*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from



the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Rejection over Wicks in view of Anvar

In response to applicant's argument that Wicks does not disclose using the structure to detect a chemical such as chemical warfare agents, agricultural pesticides, and insecticides, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Here, as stated above, because the prior art discloses the structural features of the claimed sensor, Wicks' sensor appears capable of detecting one of the components from the claimed group. See also col. 4, lines 44-64, which discloses the following: "[t]he resulting indicator composition is responsive to the presence and concentration of that analyte and **can be applied to a substrate such as a window of a flow cell, a lens, or the end of an optical fiber**, to produce an environmentally stable, re-usable detector. The composition is porous and chemically durable, so the analyte of interest can enter the matrix and effectively react with the indicator, while the indicator itself remains trapped within the matrix. With an appropriate choice of indicator, the composition can be tailored to measure pH, or detect and measure other analytes such as organics (**gasoline, benzene, trichloroethylene, toluene, xylene, and so forth**), heavy metal contaminants (**Hg, Cd, U, Pb, and so forth**), and pesticides." The disclosure by Wicks appears to encompass the claimed intended use language.

In response to applicant's argument that Anvar does not disclose a sensor wherein the substrate includes an adhesion layer in order to be affixed on an exterior surface, the Office does not find this argument to be persuasive to overcome the obviousness rejection. First, the Office interpreted Anvar's substrate as the "predetermined exterior surface," which is not positively claimed. Second, Anvar explicitly discloses that the sensor may be adhered to any type of support ("exterior surface") by utilizing the adhesion layer ("backing"). See [0014]. Thus, persons skilled in the art would recognize the benefit of utilizing Anvar's adhesion layer for adhering Wicks' sensor to an exterior surface.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LORE JARRETT whose telephone number is (571)272-7420. The examiner can normally be reached on Mon. to Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, In Suk Bullock can be reached on (571) 272-5954. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LORE JARRETT/  
Primary Examiner, Art Unit 1772

3/4/11